

MFM Investigations of [NiFe/Au/Co/Au]_N multilayers

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It was shown that Co layers of certain thicknesses sandwiched between Au layers exhibit perpendicular magnetic anisotropy. Therefore, in sputter deposited [NiFe/Au/Co/Au]_N multilayers (MLs), in neighboring ferromagnetic layers in-plane and out-of-plane anisotropy is observed for NiFe and Co layers, respectively. It was also demonstrated that the remnant magnetic configuration of NiFe layers is strongly influenced by stray fields induced by stripe domains in Co layers. Magnetic Force Microscopy (MFM) measurements combined with computer simulations were applied to investigate the strengths of magnetic field over the sample.

All measurements were performed in air atmosphere at RT. Dimensions and density of magnetic domains were estimated. The distribution of magnetization directions was deduced from comparison of MFM with the simulation results. Some sort of modulation in stray magnetic field was observed, but till now it is of unknown origin.

13.4 cm

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9.7 cm